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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/323,628	06/01/1999	KENSHIN KITO	791-052	9448

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EXAMINER

SORKIN, DAVID L

ART UNIT	PAPER NUMBER
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1723

DATE MAILED: 04/18/2002

17

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/323,628

Applicant(s)

KITOH, KENSHIN

Examiner

David L. Sorkin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 January 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Applicant is advised that should claim 23 be found allowable, claim 24 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1 and 3-6, 10, 12, 14, 16, 18, 20, 22-24 and 26 are rejected under 35 U.S.C. 101 because the claimed invention is of incredible utility in that it violates basic accepted laws of nature, particularly laws of electro~~dy~~namics and thermodynamics. In claim 1 (thrice amended), the limitation "...do not fuse when at least 100 A current flows..." is recited, whereby the phrase "may not" has been amended to read "do not". In applicant's remarks this amendment is discussed and the following statement is made "...current has a direct relationship with whether or not a conductor fuses. The precise function of a fuse is to immediately break electrical connection when current exceeds a particular value" (emphasis in original). Claim 1 is rejected under section 101 due to the phrase "does not fuse when at least 100 A" which, according to applicant statements, requires that under no circumstances whatsoever, may the fuse fuse (i.e.

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melt) at 100 A (since current has a direct relationship to fusing). Clearly applicant and the examiner disagree on what causes a substance (copper, nickel and aluminum in this case) to melt or not melt. The examiner considers that melting depends directly upon temperature. Applicant asserts that melt has a "direct relationship" to current and makes no discussion of temperature. The examiner considers that if a substance is above its melt point it will melt. Aluminum, copper and nickel are each well characterized by melting points. According to the CRC Handbook of Chemistry and Physics, 59th edition, the melting point of aluminum is 660.37 degrees C, the melting point of copper is 1083.4 degrees C, and the melting point of nickel is 1453 degrees C. (Note that the melting points are listed in units of temperature, not current). Barnes (US 3,780,078) is cited by the examiner as further evidence that conductors may fuse for reasons other than current. See especially col. 1, lines 22-30 which explain the "temperature of the adjacent atmosphere" influences whether a conductor melts. Applicant's assertion the tabs of claim 1 are not susceptible to melting under any circumstances, at a particular current is not credible. If the tabs exceed the melting point, for any reason (for example, an acetylene torch is directed at them), the must melt. With regard to applicant's statement "[t]he precise function of a fuse is to immediately break electrical connection when current exceeds a particular value" (emphasis in original), the following references are cited by the examiner as evidence that applicant's statement is false: Kozacka (US 3,080,463) and Cameron (US 3,213,242). Kozacka (US 3,080,463) explains that a time integral determines whether sufficient energy has been imparted in a conductor to cause it to fuse (see especially

col. 1, lines 1-32 and col. 2, lines 45-50). Cameron (US 3,213,242) shows in Fig. 4 a graph of current versus the time it takes given fuses to fuse (note that the scale is logarithmic, i.e. the time = 0 point would be infinitely below the portion shown, which is 0.01 to 1000 seconds).

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1 and 3-6, 10, 12, 14, 16, 18, 20, 22-24 and 26 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification fails to enable tabs of the incredible utility discussed in detail above.

5. Claims 1 and 3-6, 8-10, 12-14, 16, 18, 20 and 22-27 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Particularly, the addition of the word "each" before the phrase "having a total cross-sectional area of" is not supported by the original specification. To the contrary, pages 22 and 23 discuss changing the "total cross-sectional area" by varying the "number of tabs". For example, on page 23, lines 10-20, an example is given of seven tabs having a cross sectional area of 0.002 cm^2 being assembled to achieve a total

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cross-sectional area of 0.014 cm^2 . On page 23, lines 21-23, it is stated that "a certain number of tabs to be used are set in accordance with thickness so that such predetermined total cross-sectional areas may be provided".

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 3-6, 10, 12, 14, 16, 18, 20, 22-24 and 26 are not rejected based upon any prior art. These claims are directed to subject matter that violates the accepted laws of nature and therefor can not be anticipated or obvious.

8. Claims 7-9, 11, 13, 15, 17, 19, 21, 25 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP-10-172534 in view of Gauthier et al. (US 6,099,986).

Regarding claim 7, JP 10-172534 discloses a lithium secondary battery, comprising an internal electrode body including a positive electrode (1), a negative electrode (2) and a separator (3) the positive electrode and negative electrode being wound with the separator so that the positive electrode and the negative electrode are prevented by the separator from coming into direct contact with each other; at least a plurality of tabs (4,5) connected to each of the positive and negative electrodes for current collecting, wherein the tabs function as current fuses to become nonconductive in the event that a condition arises during discharge of the battery in which sufficient current to damage one or more components of the battery is provided (see English language abstract and

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English language translation pages 2, 3 and 6, for example). JP 10-172534 fails to disclose an organic electrolyte. Gauthier ('986) teaches that an organic electrolyte is suitable for a lithium battery (see col. 4, lines 35-40). Therefore, it is considered that it would have been obvious to one of ordinary skill in the art to have included an organic electrolyte in the battery of JP 10-172534 to provide a suitable electrolyte as taught by Gauthier ('986). Regarding claims 8, 9, 13, 25 and 27, while the claimed tab sizes are not disclosed by JP 10-172534, it is considered that it would have been obvious to one of ordinary skill in the art to have optimized the size of the tabs to suit a particular situation, because "total cross-sectional area" is a recognized result dependent variable (see English translation, page 3 and 4 and paragraphs [0010] and [0013]). It has been held that differences in size or relative dimensions is not sufficient to distinguish a claimed device from the prior art. See *In re Rose*, 220 F.2d 459, 105 USPQ 237 (CCPA 1955) and *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), *cert. denied*, 469 U.S. 830, 225 USPQ 232 (1984). Regarding claim 11, it is considered that it would have been obvious to one of ordinary skill in the art to have made the internal resistance below 10 milliohms to maximize efficiency of the battery. Regarding claim 15, it is considered that it would have been obvious to one of ordinary skill in the art to have made the deviation of resistance values of the tabs from an average value be low to achieve a product that performs reproducibly as expected. Regarding claim 17 the battery further including positive and negative terminals (8), however, it is not clear how the tabs are attached. Gauthier ('986) teaches that welding is a suitable means of attaching tabs in a battery (see col. 3, lines 27-23). It is

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considered that it would have been obvious to one of ordinary skill in the art to have attached the tabs by means of welding as taught by Gauthier ('986) to obtain a secure construction. Regarding claim 19 it is considered that it would have been obvious to one of ordinary skill in the art to have optimized the capacity of the battery to suit a particular intended use. Claim 21 fails to further structurally limit the claimed battery, because it merely stipulates an intended use.

9. Claims 7, 11, 15, 17, 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fradin (US 6,071,638) in view of Gauthier et al. (US 6,099,986). Regarding claim 7, Fradin ('638) discloses a lithium secondary battery, comprising an internal electrode body including a positive electrode (12), a negative electrode (11) and a separator (see col. 5, lines 24-31) the positive electrode and negative electrode being wound with the separator so that the positive electrode and the negative electrode are prevented by the separator from coming into direct contact with each other; at least a plurality of tabs (4) connected to each of the positive and negative electrodes for collecting current. Regarding the limitation "wherein the tabs function as...", it has been held that "apparatus claims cover what a device *is*, not what a device *does*" ((emphasis in original) *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990)) and that a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" (*Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987)). Therefore, the cited limitation fails to distinguish the claimed battery from the prior art. Fradin ('638) fails to disclose an organic electrolyte.

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Gauthier ('986) teaches that an organic electrolyte is suitable for a lithium battery (see col. 4, lines 35-40). Therefore, it is considered that it would have been obvious to one of ordinary skill in the art to have included an organic electrolyte in the battery of Fradin ('638) to provide a suitable electrolyte as taught by Gauthier ('986). Regarding claim 11, it is considered that it would have been obvious to one of ordinary skill in the art to have made the internal resistance below 10 milliohms to maximize efficiency of the battery. Regarding claim 15, it is considered that it would have been obvious to one of ordinary skill in the art to have made the deviation of resistance values of the tabs from an average value be low to achieve a product that performs reproducibly as expected. Regarding claim 17, positive and negative terminals (32,37) are disclosed and welding is disclosed as the preferred means of attachment (see col. 5, lines 56-59). Regarding claim 19, the battery capacity is not less than 5 Ah (see col. 3, line 37). Claim 21 fails to further structurally limit the claimed battery, because it merely stipulates an intended use.

10. Claims 8, 9, 13, 25 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fradin (US 6,071,638) in view of Gauthier et al. (US 6,099,986) as applied to claim 7 above, and further in view of Fishbane et al. (Physics for Scientist and Engineers). While the claimed tab size^s are not disclosed by Fradin ('638), it is considered that it would have been obvious to one of ordinary skill in the art to have optimized the size of the tabs to suit a particular situation. As taught by Fishbane (see page 811, problem 56), cross-sectional area of a conductor is well recognized as a result effective variable in the electrical arts. It has been held that differences in size or

relative dimensions is not sufficient to distinguish a claimed device from the prior art. See *In re Rose*, 220 F.2d 459, 105 USPQ 237 (CCPA 1955) and *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), *cert. denied*, 469 U.S. 830, 225 USPQ 232 (1984).

Response to Arguments

11. Applicant makes the statement "it has been consistently and repeatedly been held that a claimed structural element in a claim directed to an apparatus can be recited functionally". Applicant provides no citations to support the statement. The examiner's position is that the functional language of the instant claims fails to necessarily imply any structural limitation which distinguishes the claimed apparatus from the prior art. MPEP 2114 states under the heading "APPARATUS CLAIMS MUST BE STRUCTURALLY DISTINGUISHABLE FROM THE PRIOR ART" (emphasis in original), that "Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Danly*, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959)." Applicant goes on to state that functional recitations in the instant claims relating to situations in which various materials are intended to melt, are really structurally limitations. Particularly, applicant insists that the limitation in claim 7, "the tabs function as current fuses to become nonconductive in the event that a condition arises during discharge of the battery which is sufficient current to damage one or more components of the battery is provided", "is a structural feature" (emphasis in original). The examiner disagrees. For example, one could observe the current of the battery using a current meter, and if sufficient current to damage one or more components of

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the battery is observed, one could direct an acetylene torch at the tabs; thereby satisfying the functional language of the claim. The claim therefore requires no particular structure of the tabs. In any case, JP 10-172534 clearly and explicitly discloses the tabs performing the function stipulated in claim 7. JP-10-172534 makes clear that the tabs of one electrode of the invention are intended to fuse when external short circuit current occurs (see paragraph [0010] of the English translation "based on either the material or total cross-sectional area of a lead connected to either said positive or said negative electrode, the fusion threshold current thereof is set to a value lower than the external short-circuit current") and that in the "prior art" the tabs of both electrodes fuse (see page 6, of the English translation "when external short circuit occurs and external short circuit current flows to positive and negative electrode leads 4,5, the foil of aluminum and copper melting"). Apparently, the tab arrangement of the instant invention is most highly analogous to what JP 10-172534 considers to be "prior art". Contrary to applicant's statements, JP 10-172534 recognizes tab cross-sectional area as a result effective variable (see English translation, page 3 and 4 and paragraphs [0010] and [0013]).

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

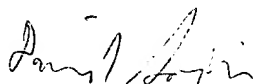
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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David L. Sorkin whose telephone number is 703-308-1121. The examiner can normally be reached on 8:00 -5:30 Mon.-Fri..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on 703-308-0457. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



David Sorkin

March 27, 2002



W. L. WALKER
SUPERVISORY PATENT EXAMINER
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